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Research Article

Exploring quality issues in academic master theses of education majors and corresponding countermeasures

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This paper tries to probe the common quality issues in academic master theses of education majors and propose some possible countermeasures. The study sampled and evaluated 275 academic master theses of education majors in China to examine common quality issues in them, and used a questionnaire to survey 210 academic master's degree candidates of education majors to find out various problems they faced in their thesis writing process. The results show that the 275 theses have serious quality issues in research innovativeness and academic writing normativity. Three major problems were detected in their writing process including the shortage of supervisors' timely feedback, insufficient academic writing competence, and the deficient blind review management and research support of their institutions. Countermeasures, which cover four stages of topic selection, research execution, final draft review and thesis defence, were then proposed from perspectives of supervisors, master's degree candidates and institutions.

Keywords: Academic master degree; Evaluation indicators; Quality evaluation; Quality issues; Thesis quality

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1. Introduction

Graduate education plays a crucial role in the advancement of knowledge and the development of skilled professionals across various fields. It typically involves intensive coursework, comprehensive examinations, and the completion of a thesis or dissertation. The primary aim of graduate education is to cultivate a deeper understanding of a particular discipline, foster critical thinking, and encourage original research that contributes to the existing body of knowledge. Globally, graduate programs vary in structure and focus, but they universally strive to uphold rigorous academic standards and produce high-quality scholarly work. The emphasis on quality is paramount, as the standard of graduate theses and dissertations provides a crucial yardstick for evaluating the comprehensive efficiency and credibility of graduate education systems.

China, in particular, has developed a distinct master's degree education system that underscores the importance of thesis quality. The system is divided into two categories: academic master's degree and professional master's degree. The objectives of these two categories are different, which can be partly seen from the different focuses of their evaluation principles in

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theses; for example, the theses of academic master's degree candidates should show innovativeness in their research, while those of professional master's degree candidates have to focus on the practical value of their research. In order to ensure the quality of postgraduate education, China's Ministry of Education issued the Measures for Random Inspection of Doctoral and Master Theses in 2014, which signals that random inspection of doctoral and master theses has become a common practice in China's higher education sector. This initiative shows that China's higher education management authorities attach great importance to the quality of postgraduate degree theses, as the quality of theses can directly reflect the quality of postgraduate education.

Thesis writing is an important part of the whole training process of academic master's degree candidates. Thesis quality is a comprehensive reflection of the theoretical and practical knowledge mastered by master students, and it is also an embodiment of their academic and scientific research competence, and therefore has always been the main criterion for granting master's degree (Brubacher, 2017). Some scholars even point out that the quality of postgraduate education in a narrow sense is represented by the quality of theses (Nenty, 2009).

Since the end of the last century, the number of enrollments of master's degree candidates in China has gradually increased. According to the 2021 National Education Development Statistics Bulletin published by China's Ministry of Education, the number of master's degree candidates enrollment per year in China has increased from 133,100 in the year of 2001 to 1,050,700 in 2021. In the case of the dramatic increase in enrollment, how to ensure the quality of master's education has been a major concern for China's higher education authorities, and one of the key policies is to set strict thesis quality assurance rules. China's colleges and universities have responded to the requirements of the Ministry of Education by formulating an external review mechanism for master theses. However, this mechanism can only evaluate the final quality of theses, but cannot monitor the thesis writing process. Even worse, this mechanism has encountered great challenges from artificial intelligence. The phenomenon of utilizing artificial intelligence for thesis writing has appeared in recent years, and the issue of academic integrity has aroused global concern. In order to ensure the quality of theses, it is necessary to effectively monitor the whole process of thesis writing and apply appropriate quality assurance strategies based on the monitoring results.

In view of this, scholars claimed that there is a need to introduce quality assurance [QA] systems in higher education (Wang, 2014). Malik and Ameen (2020) pointed out that quality assurance in education is the evaluation of an institution or program to ensure that the institution or program meets its stated objectives. For example, the International Network of Quality Assurance Agencies in Higher Education has formal links with more than 80 institutions in 50 countries to provide external review services at undergraduate and postgraduate levels (El-Khawas, 2007).

In view of the research background, the present paper will take the academic master theses of education majors in China as an example to explore the common issues in thesis quality and various problems which may negatively influence thesis quality, with the hope to propose some countermeasures to fight against the problems and finally improve the quality of academic master theses of education majors.

2. Literature Review

The existing literature mainly studies the quality assurance of master theses from the following aspects.

2.1. Quality Evaluation Criteria of Master Theses

At present, the evaluation criteria for master theses usually center around topic selection and literature review, innovativeness and research value, research competence, and academic writing normativity (meaning whether the writing is compliant to academic writing requirements) (Prins et al., 2017). Based on these criteria, the quality of theses can be classified as excellent, good, average or unqualified. Etaio et al. (2018) believe that these criteria are too broad and ambiguous,

and thesis reviewers usually determine the quality of theses based on their subjective understanding of these criteria, which will inevitably lead to the problem of reviewers' subjectivity. To combat the reviewers' subjectivity, Guan et al. (2005) proposed a fuzzy comprehensive evaluation method that combines qualitative and quantitative evaluation. They claimed that their method could complement reviewers' experience with scientific calculation. Similarly, Yang et al. (2012) also believe that the current evaluation criteria adopted by most higher education institutions in China have some defects, because different reviewers might give significantly different evaluation results towards the same dissertation with these criteria. Accordingly, they constructed a dissertation evaluation index system from a systematic point of view, which mainly covers primary criteria such as topic selection, research ability and writing ability. Each primary criterion is divided into several secondary criteria. Both primary and secondary criteria are assigned corresponding weights. Similar to their proposal, Bourke and Holbrook (2013) also proposed 12 indicators for evaluating the quality of master theses in terms of research innovativeness, literature review, research methodology, analysis and presentation of results, and so on. They believe that these 12 indicators are closely related to the quality of theses.

Among the various evaluation criteria, scholars generally agree that the most important criterion is research innovativeness, and the innovativeness of the research topic is closely related to the overall quality of the dissertation (Bourke & Holbrook, 2013). However, research innovativeness has been demonstrated by some scholars to be the most serious quality problem in master theses (Gao et al., 2023). For example, Luo (2019) found that innovativeness was missing or not clear in most of the 1160 master theses he reviewed.

2.2. Factors Influencing Thesis Quality and Countermeasures

Factors affecting the quality of theses can be generally divided into two types, namely external factors, which include supervisors and institutions, and internal factors, which are related to the master students themselves (Luo, 2019). Alternatively, some scholars divided the influencing factors into subjective and objective types (Haagsman et al., 2021). Subjective factors include students' own willingness, educational background, as well as their supervisors' scientific research spirit, while objective factors include the resources provided by their institutions, the research ability of the supervisory team, supervisors' guidance, etc. Taken together, scholars have similar views on the influencing factors that shape the quality of theses, and generally believe that there are four major factors, namely students themselves, supervisors, the cultivation and management system of institutions, and thesis reviewers (Etaio et al., 2018).

Aiming at these factors, many scholars have proposed countermeasures to improve the quality of master theses. For example, an online environment called Thesis Writer [TW] was employed by Rapp and Kauf (2018) to scaffold students' academic writing, and TW was combined with an online editor optimised for producing academic text. The two scholars found that compared to existing automated essay scoring and writing evaluation tools, TW was deemed supportive by students, because it could assist students with instruction, planning, and genre mastery. Another study by Yu et al. (2019) tried to use peer feedback to enhance the quality of master students' academic writing, and found positive results. William and Kemp (2019) even testified through their practice that master thesis quality could be guaranteed by adopting a review system similar to those adopted by academic journals. Karunaratne et al. (2019) introduced an ICT system called SciPro in the process of quality control of master theses in their university, and the results showed that the application of the system significantly improved the quality of master theses.

2.3. Quality Assurance Mechanisms for Master Theses

A few scholars have attempted to formulate a systematic and process-oriented thesis quality assurance mechanism. Long et al. (2023) proposed a comprehensive quality assurance mechanism for master theses, which encompasses the aspects of training plan, supervisor selection, supervision and management, system guarantee, etc. Similarly, Karunaratne et al. (2019) proposes an all-encompassing thesis quality assurance mechanism that involves all aspects of the

preparation, implementation, and evaluation phases of a thesis. This mechanism calls for the establishment of a quantitative scoring system with clear grading criteria as the basis for evaluation, and the evaluation of a thesis will undergo three phases including first draft, manuscript finalization, and the final version.

However, by checking the existing literature, we may find two prominent shortcomings of prior studies: Firstly, most existing studies have only provided macro indicators for the evaluation of master theses, which makes it difficult to identify micro quality issues in master theses. Secondly, most of the existing studies focus on only part of the thesis writing process, failing to provide comprehensive recommendations for the entire writing process. The present study will formulate a set of score deduction rules to optimise the evaluation of the quality of master theses and probe problems that master students may be faced with in their thesis writing process.

3. Research Questions

By collecting first-hand data, this paper seeks to answer the following questions:

RQ 1) What are the common quality issues in academic master theses of education majors in China?

RQ 2) What are the problems faced by academic master's degree candidates of education majors in their thesis writing process?

By answering these two questions, the present paper attempts to propose some possible countermeasures to tackle the detected problems and thus eliminate the quality issues and improve the overall quality of master theses of education majors.

4. Method

4.1. Research Design and Data Collection Procedures

To address these research questions, this paper organised the following research procedure. First, we used the master thesis review platform established by China's Ministry of Education to conduct sampled thesis reviews. All the theses on this platform are sent out by various colleges and universities for blind review. The platform will then randomly assign each thesis to 2 or 3 reviewers selected from the reviewer pool, which means the theses each reviewer receives are absolutely randomly assigned by the platform and hence randomised sampling will be naturally achieved for the present study. Finally, we have received 275 master theses of education majors from the platform over the recent 10 years. The basic information of the 275 theses is provided in Table 1. The theses were sent for review by four types of universities, namely, '985 Project' universities, '211 Project' universities, provincial key universities, and non-key universities. The '985 Project' universities are deemed as Tier-1 universities in China in terms of academic influence and educational quality, followed by '211 Project' universities as Tier-2, and provincial key universities occupy the third place in ranking as Tier-3. As for the non-key universities, they normally admit students who do not meet the standards of the other three types of universities, and therefore they are classified as Tier-4 in ranking.

Table 1
Number of theses sent for review by different types of institutions

Types of institutions	*Number of theses*	*Percentage*
"985 Project" universities	56	20.4%
"211 Project" universities	71	25.8%
Provincial key universities	75	27.3%
Non-key universities	73	26.5%
Total	275	100.0%

4.2. Data Analysis

We arranged for three experts of education science to review the papers for triangulation. They scored the papers based on the paper quality evaluation criteria set up by the platform, and the final score of each paper was determined through discussion. The evaluation criteria comprise four common evaluation indicators, namely research topic and literature review, innovativeness and research value, research competence, and academic writing normativity (meaning whether the writing is compliant to academic writing requirements). Considering that the evaluation indicators are quite broad, we formulated detailed score deduction rules, which makes the review results more objective and uniform (see Table 2).

Table 2
Evaluation indicators of the master theses

Evaluation indicators	Evaluation perspectives	Deduction rules (maximum of 3 points for each evaluation indicator, and 1 point will be deducted for each of the following items met until all 3 points are deducted)
Research topic and literature review	Theoretical significance and practical significance of the research; the degree of understanding of the status quo of the discipline.	1. The research topic is outdated; 2. The topic is too broad, and the focus is not clear; 3. The topic is too narrow, and lacks theoretical or practical significance; 4. The quoted literature is outdated, and some important studies are missing; 5. The literature review does not cover the core issues.
Innovativeness and research value	The value of the new insights put forward in the thesis.	1. No comprehensive and objective evaluation of the innovativeness presented in the thesis, especially the comparative analysis with the existing literature; 2. The proposed innovativeness are not reasonable; 3. The proposed research innovativeness lacks theoretical or practical value.
Research competence	Theoretical foundation embodied in the thesis; the ability to analyze and solve problems; the feasibility and appropriateness of the research methodology, and the in-depthness of the research.	1. Insufficient professional knowledge, and inaccurate use of professional terminology; 2. The thesis lacks in-depth and detailed analysis and discussion; 3. The research methodology and the content of the study do not match; 4. Flaws in the research design
Academic writing normativity	Accuracy of language expression, rigor and logic of reasoning in the thesis	1. Inaccurate expressions, with many word or sentence errors; 2. Grammatical confusion in the English abstract, inaccurate translation of sentences; 3. Errors in data; 4. Irregular or confusing formatting of citations or references; 5. Poor logic of the texts; 6. Certain assertions are too arbitrary, with no supportive evidences; 7. Lack of necessary diagrams or data.

Each evaluation indicator includes 4 grades: unqualified (0 point), qualified (1 point), good (2 points) and excellent (3 points). The experts were also required to give each paper an overall quality rating through discussion. The overall quality also includes the same 4 grades as those of each evaluation indicator.

4.3. Instruments

Additionally, we designed a questionnaire for academic master's degree candidates of education majors who were in the process of thesis writing or had finished their writing, so as to find out what problems they were faced with or had been faced with in the thesis writing process. We distributed the questionnaire through the Internet and finally 210 valid questionnaires were collected. The electronic version of our questionnaire can be accessed at https://www.wjx.cn/vm/tbfwg5k.aspx. The questionnaire contains a total of 38 questions, 4 of which were used to collect information about the respondents' postgraduate institutions and undergraduate institutions. The data shows that the respondents' postgraduate institutions tend to be at the same tier in ranking as their undergraduate institutions.

The questionnaire contained 13 non-scaled questions to collect appropriate information about the respondents' thesis writing, external review and thesis defense, and 21 scaled questions to elicit their judgments about the issues related to themselves, their supervisors, and their institutions. The reliability and validity of the scaled questions were checked in SPSS and returned a Cronbach's α coefficient of 0.942 and a KMO value of 0.937, which showed that the scaled questions were acceptable for further data analysis.

After detecting the quality issues and problems, the present study tentatively proposes some countermeasures.

5. Results and Discussion

5.1. Issues in the Quality of the Theses

Table 3 shows the quality scores of the 275 theses, from which we can summarise the quality issues in them. As can be seen from the previous section, the maximum score for each evaluation indicator is 3 points. Therefore, Table 3 shows that these 275 papers have low mean scores on all the indicators, with all the mean values being less than 2 points. In particular, the mean value of "Academic writing normativity" is the lowest among all the indicators. These findings are consistent with global research on thesis quality. For instance, Kyvik and Thune (2015) observed that many master's theses often suffer from inadequate research design and poor academic writing, issues that are prevalent worldwide. Additionally, O'Gorman and MacIntyre (2015) highlight the challenges faced by students in achieving the necessary academic rigor in their theses, emphasizing the need for better training and support.

Table 3
Scores on evaluation indicators

Indicators	*N*	*Mean score*	*SD*
Research topic and literature review	275	1.35	.657
Innovativeness and research value	275	1.33	.612
Research competence	275	1.21	.663
Academic writing normativity	275	1.14	.675

We then added the variable of types of institutions to the statistical analysis, and the results are presented in Table 4. Table 4 shows that in terms of the overall rating of the theses, the '985 Project' universities performed the best, and most of the theses sent by them were graded as good or excellent. Most of the papers sent by the other three types universities were graded as qualified, with quite a few theses from them graded as unqualified. Only one thesis from a '211 Project' university was graded as excellent, and no theses were graded "excellent" from provincial key universities or non-key universities. Table 4 also shows that on the two indicators of research competence and academic writing normativity, a number of papers scored 0 or 1 point from the '211 Project' universities, provincial key universities and non-key universities. This result may lie in the assertion by some researchers that master student enrollment expansion has been happening

Table 4
Quality ratings of the theses sent by different types of institutions

		Types of Institutions				
		985 Project	*211 Project*	*Provincial key*	*Non-key*	*Total*
Score on "Research topic and literature review"	0 point	0	0	7	11	18
	1 point	0	47	53	54	154
	2 points	48	22	15	8	93
	3 points	8	2	0	0	10
Score on "Innovativeness and research value"	0 point	0	0	0	10	10
	1 point	0	49	68	59	176
	2 points	48	19	7	4	78
	3 points	8	3	0	0	11
Score on "Research competence"	0 point	0	11	8	8	27
	1 point	5	48	57	62	172
	2 points	44	9	10	3	66
	3 points	7	3	0	0	10
Score on "Academic writing normativity"	0 point	0	9	18	17	44
	1 point	7	42	50	52	151
	2 points	47	20	7	4	78
	3 points	2	0	0	0	2
Overall rating	Excellent	9	1	0	0	10
	Good	42	18	8	5	73
	Qualified	5	42	49	46	142
	Unqualified	0	10	18	22	50

in all types of universities (especially in Tier-3 and Tier 4 universities) across China in recent years (Wu et al., 2020). The expansion of postgraduate enrollment in these universities has led to a large number of students with low scientific research competence being admitted as postgraduates. This trend aligns with international patterns where prestigious institutions typically produce higher-quality theses due to better resources and academic standards. Ding et al. (2021) found that the rapid expansion of postgraduate enrollment, particularly in lower-tier institutions, often leads to resource strain and impacts thesis quality. This phenomenon is observed globally, where increased enrollment can decrease the quality of supervision and support available to students (Horta et al., 2020).

According to the deduction rules presented in Table 2, we counted the deducted points of the 275 papers on all the evaluation indicators (see Table 5). From Table 5, we can see that serious quality issues can be detected by applying the following deduction rules: 1) "no comprehensive and objective evaluation of the innovativeness presented in the thesis, especially the comparative analysis with the existing literature" (65.09%), 2) "the thesis lacks in-depth and detailed analysis and discussion" (56.00%), 3) "Grammatical confusion in the English abstract, inaccurate translation of sentences" (53.45%), and 4) "insufficient professional knowledge, and inaccurate use of professional terminology" (40.73%). From these statistics, we can conclude that the issue of research innovativeness is the most prominent one in the 275 theses. This result echoes the findings of previous study by Luo (2019) that research innovativeness is the most serious quality problem in master theses.

5.2. Problems in the Thesis Writing Process (The Survey Results)

Based on the data from the questionnaire survey, we may have a glimpse of the problems faced by the academic master students of education majors in China in their thesis writing process. At the supervisor level, the questionnaire questions cover the innovativeness of the thesis topic assigned by the supervisor, the frequency of thesis guidance, and the initiative of thesis guidance. At the student level, the questions are about the student's research competence, academic writing skills, and their attitude toward research. At the institutional level, the questions are concerned with the institutions' management of the blind review of theses and the adequacy of research facilities. The survey results at each level are summarised as follows.

5.2.1. Lack of innovativeness in the topics assigned by supervisors

Based on the results of question 5 regarding the source of thesis topics at each type of universities (see Table 6), it is found that more than 60% of the students in the '985 Project', '211 Project' and provincial key universities accepted the topics assigned by their supervisors as their thesis topics. However, based on the aforementioned statistics in Table 4, it is clear that most of the students in the '211 Project' universities, provincial key universities, and non-key universities only got one point on the indicator of "Innovativeness and research value". Combining the data, we may conclude that a certain proportion of the topics assigned by supervisors are weak in research innovativeness. This issue has also been detected in some other research. For example, Wilkins et al. (2021) argue that supervisory practices often fail to encourage originality, leading to conservative topic choices. Such practices hinder the development of innovative research, a problem noted in various educational systems worldwide.

The above conclusion can be testified by the data in Table 5, in which we find that 65.09% of the theses don't provide comprehensive and objective evaluation of the innovativeness presented in them. This may be due to two possible reasons. One is that the supervisors did not pay enough attention to the innovativeness requirement of academic master theses. The other possible reason is that the supervisors lack in-depth knowledge of the research and are unable to provide cutting-edge suggestions on the selection of research topics. Whatever the reason is, the supervisors are to blame for this type of quality issue (Gao, 2019). Moreover, although a proportion of the topics were selected by the students themselves, the supervisors should have taken responsibility to evaluate the innovativeness of the topics.

Table 5
Statistics on deducted points

Deduction rules	*Number*	*Percentage*	*Deduction rules*	*Number*	*Percentage*
The topic lacks cutting-edge or pioneering quality	34	12.36%	The research methodology and the content of the study do not match	65	23.64%
The topic is too broad, and the focus is not clear	32	11.64%	Flaws in the research design	45	16.36%
The topics is too narrow, and lacks theoretical or practical significance	18	6.55%	Inaccurate expressions, with many word or sentence errors	87	31.64%
The quoted literature is outdated, and some important studies are missing	81	29.45%	Grammatical confusion in the English abstract, inaccurate translation of sentences	147	53.45%
The literature review does not cover the core issues	88	32.00%	Errors in data	11	4.00%
No comprehensive and objective evaluation of the innovativeness presented in the thesis, especially the comparative analysis with the existing literature	179	65.09%	Irregular or confusing formatting of citations	25	9.09%
The so-called innovativeness are not practical	59	21.45%	Poor logic of the texts	64	23.27%
The research lacks theoretical or practical value	31	11.27%	Certain assertions are too arbitrary, with no supportive evidences	72	26.18%
Insufficient professional knowledge, and inaccurate professional terminology	112	40.73%	Lack of necessary diagrams or data	24	8.73%
The thesis lacks in-depth and detailed analysis and discussion	154	56.00%			

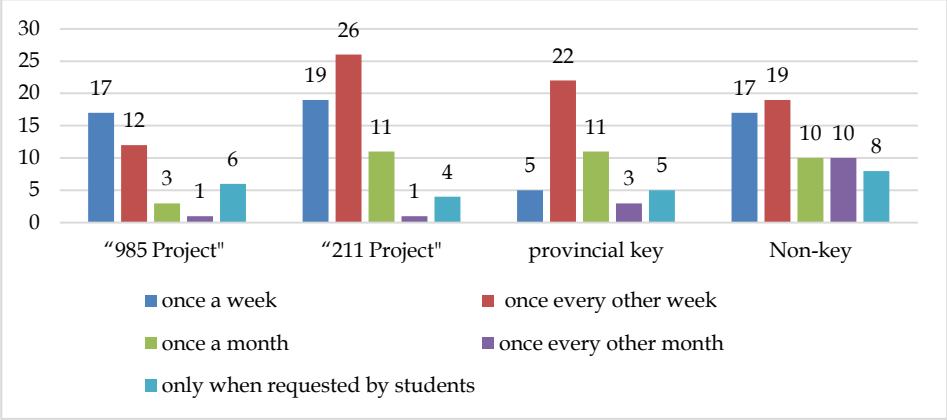
Table 6
Sources of topics for theses

	Supervisor-assigned	*Self-selected*
Type of Universities		
985 Project	71.79%	28.21%
211 Project	63.93%	36.07%
Provincial	71.74%	28.26%
Non-key	45.31%	54.69%

5.2.2. Insufficient guidance from supervisors

According to the survey results of Question 10 regarding the frequency of guidance from the supervisors, (see Figure 1), the guidance frequency is lower than the expectation of the students in all types of universities. For students in the '985 Project' universities, less than half of them could communicate with their supervisors once a week, while 30.77% of them could only meet with their supervisors once every other week. Similarly, in the '211 Project' universities and the provincial key universities, the guidance frequency was also very low. According to some scholars, academic papers need to be written with systematic guidance and feedback from supervisors, otherwise serious quality issues may arise (Chur-Hansen & McLean, 2006). To tackle this problem, Filippou et al. (2021) claimed that supervisors should take their responsibilities to give support and timely supervision to their students. This claim was echoed by de Kleijn et al. (2015), who also believed that supervisors should adapt to student needs by explicating standards, providing critical feedback and sympathizing. On the other hand, de Kleijn et al. (2014), and Wagener (2018) also suggested that master students should establish a good relationship with their supervisors so that they may get more active help from their supervisors. Effective supervision involves not only providing critical feedback but also supporting students emotionally, a practice that is emphasized in educational literature (Gunasekera et al., 2021; Lorensius et al., 2022).

Figure1
Frequency of supervisors' guidance



5.2.3. Students' incompetent academic writing ability

According to the responses to Question 20 and Question 21 about students' academic writing ability (see Table 7), the average score of Chinese writing ability of students in the '211 Project' universities is 3.75, which is slightly lower than the average scores of students from other types of universities. Regarding the English writing ability, students of the provincial key universities got the lowest mean score (3.04). The result may be validated by checking Table 4, where it is found that quite many theses from this type of universities got 0 or 1 point on the indicator of academic writing normativity.

On the whole, Table 7 clearly shows that students from all the universities should put efforts to improve their academic writing ability, because all the mean scores are below 4 points. This

finding may also find its clue in Table 5, where the number of theses with points deducted due to grammatical confusion in the English abstract and inaccurate translation of words is as high as 53.45%, and the number of theses with points deducted due to inaccurate expression and sentence errors reaches 31.64%. These findings resonate with concerns about graduate students' writing skills. That is why quite a few scholars have emphasized the need for comprehensive writing support programs to enhance students' academic writing competencies (Tremblay-Wragg et al., 2021; Yu & Liu, 2021).

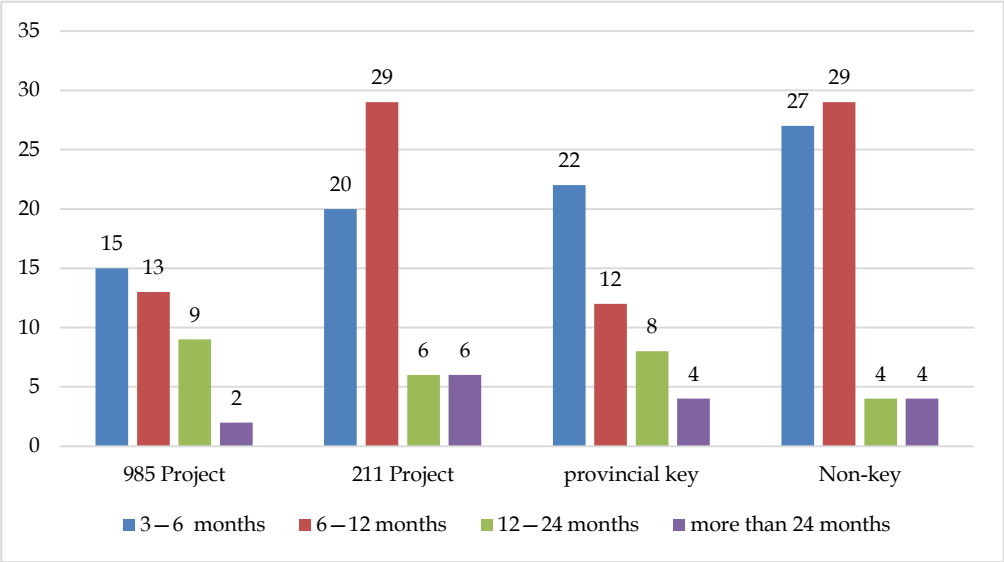
Table 7
Results of students' academic writing abilities

	Mean score of Chinese writing ability	*Mean score of English writing ability*
Type of Universities		
985 Project	3.95	3.77
211 Project	3.75	3.67
Provincial	3.89	3.04
Non-key	3.92	3.64

5.2.4. Students' insufficient time commitment to thesis writing

According to the survey results of Question 7 about thesis completion time (see Figure 2), we found that a large number of the students in all the universities spent only 3-6 months in thesis writing. The inadequate time investment may lead to various quality issues in their theses, such as the issue shown in Table 5, in which 56.00% of the theses lack in-depth analysis and discussion. The necessity for sufficient time allocation in thesis writing is well-documented in the literature (Ali & Kamraju, 2023).

Figure 2
Time spent in thesis writing



5.2.5. Institutions' weak management of thesis blind review

Blind review of theses is very important for ensuring thesis quality (Jamali et al., 2020). According to the survey results of Question 26 about the management of thesis blind review (see Table 8), students of the '985 Project' and '211 Project' universities generally thought that their universities were strict with thesis blind review, since both mean scores are above 4 points. However, the mean scores of the other two types of universities are below 4 points. Effective blind review processes are essential for maintaining thesis quality. The international academia generally acknowledges that rigorous peer review processes are critical for ensuring the credibility and quality of academic

research (Lauria, 2023). The effectiveness of the blind review process significantly impacts the overall quality of theses. Poor management of blind review may allow some unqualified theses to pass the scrutiny. According to the data in Table 4, the scores of the sampled theses of the provincial key universities and non-key universities in all dimensions are concentrated in the low-scoring range, which may be related to the poor management of their blind review process.

Table 8
Management quality of thesis blind review

	Mean score
Type of Universities	
985 Project	4.10
211 Project	4.05
Provincial	3.85
Non-key	3.80

5.2.6. Inadequate research support from institutions

Research support such as research facilities and research funding plays a crucial role in ensuring thesis quality. Five survey items (Questions 29 to 33) are intended to elicit the students' perceptions of the research support provided by their institutions (see Table 9). According to Table 9, we found that except the '985 Project' universities, which scored 4 points on 2 survey items, and all the other three types of universities scored less than 4 points on all the five items. This result implies the inadequacy of research support from a large number of the institutions to their master students, which may lead to poor quality of master theses from these universities. Many researchers hold a similar idea that institutional research support is crucial for students' academic success (Mason, et al., 2021; Pollard & Kumar, 2021; San & Guo, 2023; Tahir et al., 2016; Walsh et al., 2009).

Table 9
Research support provided by institutions

	Research facilities	*Academic resources*	*Research funding*	*Research projects*	*Academic conferences*
Types of Institutions					
985 Project	3.97	3.97	3.77	4.00	4.00
211 Project	3.95	3.90	3.74	3.87	3.89
Provincial key	3.54	3.85	3.46	3.57	3.43
Non-key	2.33	2.30	2.02	2.13	2.20

6. Recommendations for Policy and Practice

6.1. Some Countermeasures

Based on the above investigation of the thesis quality issues of education majors in China and the problems faced by academic master's degree candidates, this paper intends to propose a set of countermeasures for the consideration of policy makers and practitioners to tackle the issues and problems. This set of countermeasures involves three dimensions: the supervisor dimension, the student dimension and the institution dimension (see Figure 3). The countermeasures are directed to four stages of the thesis writing process, namely the topic selection stage, the research stage, the final draft review stage and the defense stage.

At the stage of topic selection, institutions can establish a supervisor communication mechanism so that supervisors in the same or similar majors can have in-depth exchanges on the assignment of thesis topics, and assess the innovativeness and feasibility of the topics. To optimise the selection of topics, institutions may construct a database of excellent theses in the same major, so that both supervisors and students can refer to the established topics by checking the database, thus gaining a more in-depth and comprehensive understanding of the research topics. Moreover,

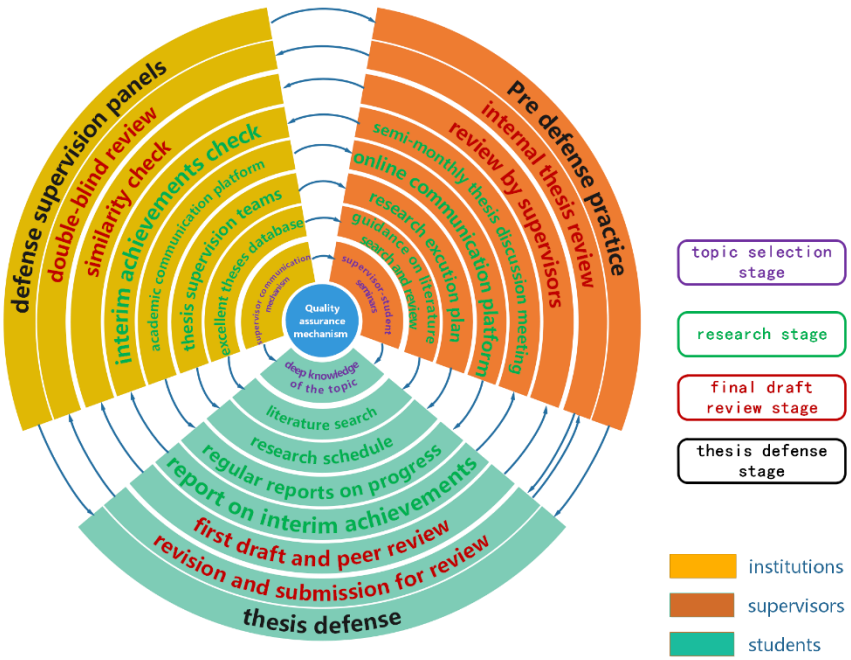
supervisor-student seminars may be organised for supervisors to conduct dialogues with their students, so that students may have a clearer understanding of the assigned topics.

At the research stage, supervisors need to make a research execution plan with their students and track the progressing status of the plan regularly. On the other hand, students should make a research schedule that suits the research execution plan to ensure the smooth advancement of the research process. Meanwhile, as the research process may require communication and discussion across disciplines and specialties, institutions should set up various thesis supervision teams and establish an academic communication platform to enhance academic communication among supervisors. Students can publish their academic reports on this platform, so that supervisors can be informed of the students' research progress in time and give timely advice and support. Additionally, a semi-monthly thesis discussion meeting is necessary to enable students to present their research results regularly and receive important feedback from their supervisors. For the first draft of the theses, both supervisor review and peer review mechanisms should be established for identifying possible problems and deficiencies.

At the stage of final draft review, supervisors should examine the final draft of their students' theses before sending them out for external review, find out deficiencies and provide suggestions to their students. After receiving the feedback, students should actively make revisions and submit the theses to the institutions. Thereafter, the institutions shall conduct similarity check of the theses. The standard of the similarity check should be determined with reference to the standards of other universities offering education programmes. By considering the standards of similarity check of academic master theses of education majors, the present paper suggests that the standards can be stipulated as follows: if the similarity check result is equal to or below 15%, the theses can be submitted for external blind review; if the ratio is between 15% and equal to or below 30%, the theses should be revised in 3 months before another similarity check; if the ratio is above 30%, the theses must be revised significantly and cannot be sent for review until 6 months later. The results of the similarity check should be fed back to the students and their supervisors as soon as possible,

Figure 3

Master thesis quality assurance countermeasures



so that they can make appropriate revisions accordingly. On passing the similarity check, the theses will be sent out for external blind review. The present paper suggests that institutions should adopt the Ministry of Education's Thesis Quality Monitoring Service Platform for blind review, which is conducive to ensuring the fairness and authenticity of the blind review process. Alternatively, institutions may construct their own blind review platform and set up strict rules for review.

Only students whose theses have passed the blind review can proceed to the thesis defense stage. Supervisors can organise a simulated thesis defense to help students familiarise with the defense process. At the same time, the institution may set up defense supervision panels, which may be composed of master supervisors randomly selected from the institution itself and other institutions, so as to supervise the quality of the thesis defense. The institutions should ensure that a certain proportion of the panel members be recruited from other institutions.

6.2. Application of the Countermeasures and Results

The countermeasures proposed in this study were tested on four master's degree candidates of education majors for one and a half year from the stage of topic selection till the end of their thesis defense. The four students and the authors of the present study are from the same university, and this university is a "211 Project" university. The four students were under supervision of 4 supervisors respectively. Due to the fact that some of the countermeasures could only be implemented at the university's management level, we had to drop them in our small-scale experiment. The adopted countermeasures are summarised in Table 10.

Table 10
The adopted countermeasures in practice

Stage and dimension	*Countermeasures*
Topic selection	
Supervisor	1) assigning topics; 2) joining the supervisor team; 3) discussing the topics within the team and providing feedbacks
Student	1) accepting or selecting a thesis topic; 2) make revisions on the thesis topic according to the feedbacks from the supervisor team, or switch to a new topic after consulting his/her supervisor
Institution	1) organizing the supervisor team; 2) granting authorization to its supervisors and students to use the master's thesis database from CNKI
Research	
Supervisor	1) making the execution plan for his/her student; 2) negotiating with other supervisors to set up a WeChat group for all the students to enable peer feedback among them; 3) organizing a thesis inspection meeting with other supervisors half a year later
Student	1) making the detailed research schedule; 2) reporting research progress weekly to his/her supervisor; 3) reporting research progress to the supervisor team at the inspection meeting and doing the revisions
Institution	Setting the time limit for the thesis research
Final draft	
Supervisors	1) reviewing the final draft; 2) organizing the simulated defense meeting
Students	1) finishing the final draft; 2) defending at the simulated defense meeting
Institution	1) organizing the similarity check and the external blind review; 2) setting the standard for the similarity check; 3) constructing the reviewer bank
Thesis defense	
Supervisors	Joining the defense expert panel or acting as an auditor at the defense meeting
Students	Defending for the thesis at the defense meeting
Institution	Organizing the defense panel, which should be composed of experts from different universities

At the end of the experiment, all the four theses passed the final defense as expected. One of the four theses was graded excellent and the other three were graded good in quality, based on the results of the external blind review and the defense performance. For comparison purpose, we also rated the four theses by applying the evaluation indicators and the deduction rules described in the Part of 'Method', and the results are shown in Table 11.

Table 11
Quality ratings of the four theses

Evaluation indicator / Score	*Number of theses*
Score on "Research topic and literature review"	
2 points	2
3 points	2
Score on "Innovativeness and research value"	
2 points	1
3 points	3
Score on "Research competence"	
2 points	2
3 points	2
Score on "Academic writing normativity"	
2 points	1
3 points	3
Overall rating	
Good	2
Excellent	2

By comparing Table 11 and Table 4, we can see that the four theses on the whole performed better than the majority of the theses from the "211 Project" universities on all the four indicators and overall rating, because all the four theses scored 2 or 3 points on the indicators while most of their counterparts in Table 4 scored only 1 point. Hence, we may tentatively conclude that the countermeasures can be trusted to ensure thesis quality for master's degree candidates of education majors.

7. Conclusion

This paper proposes a set of countermeasures to tackle the quality issues in academic master theses of education majors and related problems in the thesis writing process, emphasizing the respective roles and interrelationships of supervisors, master students and institutions. The high quality of academic master theses is ensured through guidance at the supervisor level, execution at the student level, and management at the institution level. The elements at each level synergize with each other to build an organic mechanism.

Drawing from existing literature and the present study, several recommendations emerge for enhancing the quality of academic master theses in education: firstly, supervisor guidance should be enhanced. Effective supervisor guidance is pivotal in ensuring the quality and scholarly rigor of master theses (McQuade et al., 2020). Establishing clear expectations and regular feedback mechanisms can significantly improve student outcomes. Secondly, student-centered approaches should be emphasized. The importance of empowering students as active participants in their thesis development process has been demonstrated by some scholars (Bourne & Winstone, 2021). Encouraging autonomy while providing structured support fosters a sense of ownership and accountability. Lastly, institutional support structures should be perfected. Institutions play a crucial role in fostering a conducive environment for thesis writing, as quite many studies have testified the significance of institutional frameworks that promote academic integrity, research ethics, and scholarly excellence (Mishra, 2020).

However, there are some potential flaws to be considered in this study. Firstly, the sample size of this study is relatively small, and the diversity and representativeness of the sample needs to be

improved. The small sampling may limit the general applicability of our findings. Therefore, future studies may consider expanding the sample size to include more theses and subjects from different types of institutions. Secondly, due to practical reasons, the quality assurance countermeasures proposed in this study haven't got a chance to be fully validated in practice, and subsequent studies may do something from the validation perspective.

In conclusion, ensuring the quality of master theses is a comprehensive task, and the future research direction lies in strengthening the thesis quality management in the whole process of thesis writing and ensuring that different sides such as institutions, supervisors, students and so on can work together smoothly.

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Data availability: The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Ethical statement: Data collection and analyses of collected data were conducted with the consent of all subjects who participated in the study.

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